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10/612,790	07/02/2003	Behnam Pourdeyhimi	297/180	5458

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EXAMINER

THORNEWELL, KIMBERLY A

ART UNIT	PAPER NUMBER
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2128

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/612,790

Applicant(s)

POURDEYHIMI, BEHNAME

Examiner

Kimberly Thornevell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/17/04, 8/17/05, 2/1/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-34 have been presented for examination.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 3/17/2004, 8/17/2005 and 2/1/2006 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Claim Objections

3. Claim 10 is objected to because "determining texture function" should read, "determining a texture function."
4. Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 16 is directed to computer processing of the digitized image with a Fourier transform algorithm to create a fiber orientation distribution of the fibers on the surface of the imaged fiber structure. However, if step (c) in independent claim 12 is performed using a Fourier transform algorithm, then claim 16 fails to further limit claim 12.
5. Claim 19 is objected to because "digitize image" in line 2 of step (c) should read, "digitized image." Furthermore, the units used for the image size is inconsistent. More specifically, the units used in step (b) are cm^2 , while the units used in step (c) are cm. Appropriate correction is required.

6. Claim 32 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 5, 16, 18, 28, 30, and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5 and 18 are directed to processing the ODF to rank the ODF against known standards. How does the processing "rank" the ODF against these standards?

Claim 16 is directed to processing the digitized image with a Fourier transform algorithm to create a fiber orientation distribution. It is unclear whether this is intended to be the same fiber orientation distribution recited in independent claim 12.

Claim 28 recites the limitation "the texture function" in step c. There is insufficient antecedent basis for this limitation in the claim.

Claims 30 and 31 recite the limitation "the substrate" in line 3. There is insufficient antecedent basis for this limitation in the claims.

Furthermore, claim 31 is directed to computer processing the digitized image with a co-occurrence method. What is a co-occurrence method and how is the digitized image computer processed with it in order to determine a texture function?

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 1-31 and 33-34 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

MPEP 2106 recites, in part:

b) "TANGIBLE RESULT"

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a 35 U.S.C. 101 judicial exception, in that the process claim must set forth a practical application of that judicial exception to produce a real-world result.

All of independent claims 1, 12, 19, 24, and 28 are directed to methods for evaluating selected surface and physical optical properties of structures made wholly or partly from fibers, polymers, films or a combination thereof. All independent claims contain a final step directed to computer processing of a digitized image. However, the claims fail to meet the tangible result requirement because no practical application of the computer processing is set forth in the claim in order to achieve a real-world result. For example, the final step of claim 1 is directed to computer processing of the digitized image to determine a property of the structure. However, after that property is determined, no real-world result is achieved because no practical application is given to the property after being determined by the processor. Because independent claims 1, 12, 19, 24 and 28 lack a useful, concrete and tangible result, the claims are

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deemed non-statutory. Dependent claims 2-11, 13-18, 20-23, 25-27, 29-31 and 33-34 do not overcome the deficiencies of their respective independent claims and therefore are also deemed non-statutory.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 12-13, 15-16, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobsa et al., US Patent no. 5,299,133, as cited in Applicant's IDS.

As per claim 12,

Kobsa discloses a computer controlled method for evaluating selected surface and physical optical properties of structures made wholly or partly from fibers, said method comprising the steps of:

- Illuminating the surface of a structure (**column 5 lines 57-65, rays of light being directed to horizontal plane**);
- Obtaining a digitized image from the illuminated surface of the structure (**column 11 line 65-column 12 line 4**); and

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- Computer processing of the digitized image including use of the Fourier transform (**column 5 lines 41-43**) to create a fiber orientation distribution (ODF) of the fibers on the surface of the imaged fibrous structure (**column 2 lines 49-62**).

As per claim 13,

Kobsa discloses illuminating the surface of a structure with a collimated light source (**Figure 3, parallel rays of light**).

As per claim 15,

Kobsa discloses obtaining a digitized image from the illuminated surface of the structure with a camera (**column 13 lines 44-51**).

As per claim 16,

Kobsa discloses computer processing of the digitized image with a Fourier transform algorithm to create a fiber orientation distribution (ODF) of the fibers on the surface of the imaged fiber structure (**column 8 lines 17-22**).

As per claim 18,

Kobsa discloses processing of the ODF to rank the ODF against known standards (**column 17 lines 11-16**).

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13. Claims 19-20 and 22-23 are rejected under 35 U.S.C. 102(a) as being anticipated by Pourdeyhimi et al., "Area-Based Strategy for Determining Web Uniformity," Textile Research Journal December 2002, as cited in Applicant's IDS.

As per claim 19,

Pourdeyhimi discloses a computer controlled method for evaluating selected surface and physical optical properties of structures made wholly or partly from fibers, said method comprising the steps of:

- Illuminating the surface of a fibrous structure (**page 1067 column 1 third full paragraph**);
- Obtaining a digitized image from a structure sample size of at least $10 \times 10 \text{ cm}^2$ (**page 1067 column 1 second full paragraph**); and
- Computer processing of the digitized image including breaking the digitized image into windows of at least $1 \times 1 \text{ cm}$ (**page 1067 column 1 last paragraph**) for analysis of size effect in order to determine basis weight non-uniformity (blotchiness) of the fibrous structure (**page 1070 column 1 first full paragraph**).

As per claim 20,

Pourdeyhimi discloses illuminating the surface of the structure with a direct light source (**page 1067 column 1 third full paragraph**).

As per claim 22,

Pourdeyhimmi discloses measuring basis weight non-uniformity of a structure selected from the group comprising webs, papers, nonwovens and composites made from one or more of these materials (**page 1065 column 1 paragraph 2**).

As per claim 23,

Pourdeyhimmi discloses processing of the basis weight non-uniformity against known standards (**page 1071 column 1 last paragraph**).

14. Claims 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al., "Characterizing Fuzz in Nonwoven Fabrics," INJ Spring 2000, cited in Applicant's IDS.

As per claim 24,

Kim discloses a computer controlled method for evaluating selected surface and physical optical properties of structures made wholly or partly from fibers, said method comprising the steps of:

- Illuminating the surface of a fibrous structure having pilling thereon by transmitting light at an acute angle between about 4.deg. and 60.deg. (**page 19 column 1 first full paragraph**) to the surface of the structure to provide dark field imaging of the surface structure wherein little light is reflected by the surface (**page 19 column 1 second full paragraph, shadows**) and significant light is reflected by pills and surface defects thereon (**page 19 column 1 second full paragraph, illumination of fuzz**);

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- Obtaining a digitized dark field image from the illuminated surface of the structure (**page 19 column 1 second full paragraph**); and
- Computer processing of the digitized image to determine pilling on the surface of the structure (**page 19 column 2 last paragraph**).

As per claim 25,

Kim discloses illuminating the surface of a structure with a dark-field transmitted light source (**page 19 column 1 second full paragraph, *cylindrical lighting system***).

As per claim 26,

Kim discloses determining pilling on the surface of a structure selected from the group comprising woven and knit constructions (**page 22 column 1 first full paragraph**).

As per claim 27,

Kim discloses processing of surface pilling against known standards (**page 19 column 2 last paragraph, *thresholds***).

15. Claims 28-29 and 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu et al., "Texture Evaluation of Carpets Using Image Analysis," Textile Research Journal 61(7), 1991, as cited in Applicant's IDS.

As per claim 28,

Wu discloses a computer controlled method for evaluating selected surface and physical optical properties of structures made wholly or partly from fibers, polymers, films or a combination thereof; said method comprising the steps of:

- Illuminating the surface of a fibrous structure by transmitting light at an acute angle thereto between about 10.deg. and 80.deg. in order to highlight raised features on the surface of the structure (**page 409 column 1 lines 1-11**);
- Obtaining a digitized image of the structure of the surface (**page 409 column 1 first full paragraph lines 1-4, pixels**); and
- Computer processing of the digitized image including use of an algorithm to determine texture periodicity and corresponding amplitude in order to determine the texture function of the structure (**page 410 column 2 first paragraph**).

As per claim 29,

Wu discloses illuminating the surface of the structure with a direct light source (**page 408 column 2 last paragraph, fluorescent light**).

As per claim 33,

Wu discloses determining the texture function of a structure of non-woven construction (**page 408 column 2 second full paragraph, carpet**).

As per claim 34,

Wu discloses processing of the texture function against known standards (**page 414 Table IV and column 1 last paragraph**).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1-5, 7-11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobsa et al., US Patent no. 5,299,133, in view of Kim et al., "Characterizing Fuzz in Nonwoven Fabrics," INJ Spring 2000, both cited in Applicant's IDS.

As per claim 1,

Kobsa discloses a computer controlled method for evaluating selected surface and physical optical properties of structures made wholly or partly from fibers, said method comprising the steps of:

- Illuminating the surface of a structure (**column 5 lines 57-65, rays of light being directed to horizontal plane**);
- Obtaining a digitized image from the illuminated surface of the structure (**column 11 line 65-column 12 line 4**); and
- Computer processing of the digitized image to determine a property of the structure selected from the group consisting of:

- A fiber orientation distribution (ODF) of the fibers on the surface of the imaged structure (**column 12 lines 38-44**);
- Basis weight non-uniformity (blotchiness) of the structure (**column 24 lines 8-24**); and
- Texture function from the structure (**column 2 lines 49-62**, *Fourier series description of shape contour*).

Kobsa does not disclose expressly determining the property of pilling on the surface of the structure. Kim discloses a method for evaluating a surface made of fibers including obtaining a digitized image of the surface of the structure and determining pilling on the surface of the structure (**page 19 column 1 first full paragraph**).

It would have been obvious to one of ordinary skill in the art of fibrous surface evaluation, at the time of the present invention, to modify Kobsa's method for evaluating a fibrous surface of a structure with Kim's method of determining pilling on the surface of a structure. The motivation for doing so would have been to improve fabric reliability by using Kobsa's illumination method on the surface of the structure in order to evaluate pilling on the surface of the fabric (Kim page 18 column 1 paragraph 4-column 2 paragraph 1).

As per claim 2,

Kobsa discloses illuminating the surface of a structure with a collimated light source (**Figure 3**, *parallel rays of light*).

As per claim 3,

Kobsa discloses obtaining a digitized image from the illuminated surface of the structure with a camera (**column 13 lines 44-51**).

As per claim 4,

Kim discloses creating a fiber orientation distribution (ODF) of fibers on the surface of a structure selected from nonwovens and their composites (**page 19 column 1 first full paragraph**, *nonwovens taught at page 18 column 2 second paragraph*).

As per claim 5,

Kobsa discloses processing of the ODF to rank the ODF against known standards (**column 17 lines 4-10**, *thresholds*).

As per claim 7,

Kobsa discloses processing of the basis weight non-uniformity against known standards (**column 15 line 66-column 16 line 15**).

As per claim 8,

Kim discloses pilling on the surface of a structure selected from the group comprising woven and knit constructions (**page 22 first full paragraph**).

As per claim 9,

Kim discloses processing of surface pilling against known standards (**page 20 column 1 first full paragraph**).

As per claim 10,

Kobsa discloses determining a texture function of a structure (**column 2 lines 49-62, *Fourier series description of shape contour***). Kim discloses the structure being selected from the group comprising woven, knit (**page 22 first full paragraph**) and non-woven constructions (**abstract, page 18 column 2 second paragraph**).

As per claim 11,

Kobsa discloses processing of the texture function against known standards (**column 16 lines 42-53**).

As per claim 17,

Kobsa discloses creating a fiber orientation distribution (ODF) of the fibers on the surface of the imaged structure (**column 12 lines 38-44**). Kosba, however, does not disclose expressly the structures being selected from the group comprising non-wovens, paper, and their respective composites. Kim discloses creating a fiber orientation distribution (ODF) of fibers on the surface of a structure selected from nonwovens and their composites (**page 19 column 1 first full paragraph, *nonwovens taught at page 18 column 2 second paragraph***).

It would have been obvious to one of ordinary skill in the art of fibrous surface evaluation, at the time of the present invention, to modify Kobsa's method of evaluating the

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surface of a fibrous structure by using Kim's nonwovens as the fibrous structure in order to determine properties of fibers in nonwoven structures.

18. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobsa et al., US Patent no. 5,299,133, in view of Kim et al., "Characterizing Fuzz in Nonwoven Fabrics," INJ Spring 2000, and further in view of Pourdeyhimi et al., "Area-Based Strategy for Determining Web Uniformity," Textile Research Journal December 2002, as cited in Applicant's IDS.

As per claim 6,

Kobsa discloses basis weight non-uniformity of a structure (**column 24 lines 8-24**). Kim discloses the structure being webs (**page 21 figure 10**), nonwovens, and their composites (**abstract, page 18 column 2 second paragraph**). Neither Kobsa nor Kim discloses determining basis weight non-uniformity of paper. Pourdeyhimi discloses determining basis weight non-uniformity of paper (**page 1065 column 1 paragraph 4**).

It would have been obvious to one of ordinary skill in the art of fibrous surface evaluation, at the time of the present invention, to modify Kobsa/Kim's method of determining basis weight non-uniformity of a structure, with the teachings of Pourdeyhimi in order to include paper as one of the structures. The motivation for doing so would have been to improve appearance of the fibrous substance by examining the surface to correlate it with the mass non-uniformity (Pourdeyhimi page 1065 column 1 paragraph 4).

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19. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobsa et al., US Patent no. 5,299,133, in view of Paulson, Jr., US Patent no. 4,634,280.

As per claim 14,

Kobsa does not disclose expressly transmitting light from a light source through a diffuser and a beam splitter onto the fibrous structure supported by a mirror. Paulson, Jr. discloses a method of scattering light on yarn in order to measure shape parameters of the yarn, wherein light is transmitted light source through a diffuser and a beam splitter onto the fibrous structure supported by a mirror therebeneath to facilitate obtaining the digitized image by a camera positioned above the fibrous structure (**column 3 lines 3-23**).

It would have been obvious to one of ordinary skill in the art of fibrous surface evaluation, at the time of the present invention, to modify Kobsa's method of evaluating the surface of a fibrous structure with Paulson, Jr.'s optical arrangement for obtaining a digitized image of the fibrous structure. The motivation for doing so would have been to improve knowledge of the fibers used in Kobsa's method by applying scattered beams of light in order to obtain parameters that characterize the fibers in a more realistic manner (**Paulson, Jr. column 1 lines 23-40**).

20. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pourdeyehimi et al., "Area-Based Strategy for Determining Web Uniformity," Textile Research Journal December 2002, in view of Paulson, Jr., US Patent no. 4,634,280.

As per claim 21,

Pourdeyhimi does not disclose expressly transmitting light from a light source through a diffuser and a beam splitter onto the fibrous structure supported by a mirror. Paulson, Jr. discloses a method of scattering light on yarn in order to measure shape parameters of the yarn, wherein light is transmitted light source through a diffuser and a beam splitter onto the fibrous structure supported by a mirror therebeneath to facilitate obtaining the digitized image by a camera positioned above the fibrous structure (**column 3 lines 3-23**).

It would have been obvious to one of ordinary skill in the art of fibrous surface evaluation, at the time of the present invention, to modify Pourdeyhimi's method of evaluating the surface of a fibrous structure with Paulson, Jr.'s optical arrangement for obtaining a digitized image of the fibrous structure. The motivation for doing so would have been to improve knowledge of the fibers used in Pourdeyhimi's method by applying scattered beams of light in order to obtain parameters that characterize the fibers in a more realistic manner (**Paulson, Jr. column 1 lines 23-40**).

21. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al., "Texture Evaluation of Carpets Using Image Analysis," Textile Research Journal 61(7), 1991, in view of Pourdeyhimi, "Assessing Fiber Orientation IN Nonwoven Fabrics," INDA Journal of Nonwovens Research Vol. 5 No. 4, 1993, both cited in Applicant's IDS.

As per claim 30,

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Wu does not disclose expressly processing of the digitized image with a Fourier Transform. Pourdeyhimi discloses a method for determining a texture function of a structure made of fibers by computer processing a digitized image with a Fourier Transform (**page 31 column 1 second full paragraph**).

It would have been obvious to one of ordinary skill in the art of fibrous surface evaluation, at the time of the present invention, to modify Wu's method of evaluating surface properties of structures made from fibers, with Pourdeyhimi's method of determining a texture function with a Fourier transform. The motivation for doing so would have been to improve accuracy by quantifying transition in frequency in the fibers (Pourdeyhimi page 31 column 1 second full paragraph).

22. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al., "Texture Evaluation of Carpets Using Image Analysis," Textile Research Journal 61(7), 1991, in view of Pourdeyhimi et al., "Evaluating Carpet Appearance Loss: Periodicity and Tuft Placement," Textile Research Journal 64(1), 1994, both cited in Applicant's IDS.

As per claim 31,

Wu does not disclose expressly computer processing of the digitized image with a co-occurrence method. Pourdeyhimi discloses a method for determining a texture function of a substance by computer processing a digitized image with a co-occurrence method (**page 26 column 2 last paragraph**).

It would have been obvious to one of ordinary skill in the art of fibrous surface evaluation, at the time of the present invention, to modify Wu's method of evaluating surface properties of structures made from fibers, with Pourdeyhimi's method of determining a texture function with a co-occurrence method. The motivation for doing so would have been to improve accuracy by indicating wear on fabrics by using co-occurrence methods (Pourdeyhimi page 27 last paragraph).

Conclusion

23. The prior art made of record on the Form PTO-892 and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Thornewell whose telephone number is (571)272-6543. The examiner can normally be reached on 9am-5:30pm M-F.

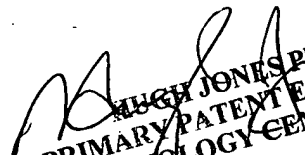
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kimberly A. Thornewell
Patent Examiner
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